Small Business Innovation Research/Small Business Tech Transfer

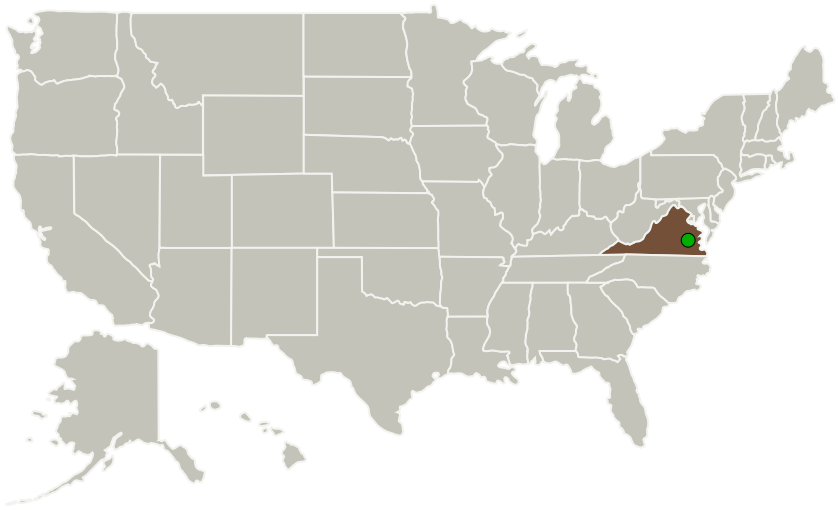
HIgh Efficiency Laser for Aircraft/UAV and Space Lidar Missions, Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

This SBIR will develop advanced, high-efficiency, high beam-quality solid-state laser technology and non-linear wavelength conversion technology suitable for Ozone, Aerosol, Wind, CO2, Water Vapor Lidar. We propose to increase the wall-plug efficiency of 1um lasers from 6-8% into the 12-16% range drastically reducing the electrical power needed for satellite missions. For the same satellite bus this means that power will be available to support another lidar system, radar or other instruments greatly increasing the science mission value. The proposed non-linear wavelength conversion technology can enable direct range-resolved ozone, CO2 measurement and/or oxygen lidars that support CO2 pressure and density determinations. The technology developed could also enable sub-orbital flight missions for ozone and water vapor.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Fibertek, Inc.	Lead Organization	Industry	Herndon, Virginia
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

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Primary U.S. Work Locations
Virginia

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139987)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Fibertek, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Floyd Hovis

Co-Investigator:

Floyd Hovis

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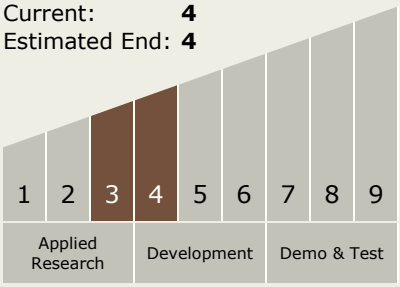
Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System